



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/842,573 | 04/25/2001 | Naoto Arai | 10873.706US01 | 7468 |

7590 07/03/2003

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

[REDACTED] EXAMINER

WILLS, MONIQUE M

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1746

DATE MAILED: 07/03/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/842,573 | ARAI ET AL. | |
| | Examiner | Art Unit | |
| | Wills M Monique | 1746 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 April 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6, 8-14 & 16-18 is/are rejected.

7) Claim(s) 7 and 15 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 25 April 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Japanese foreign priority document(s) 2000-131760, filed April 28, 2000 and submitted under 35 U.S.C. 119(a)-(d), has/have been received and placed of record in the file.

Information Disclosure Statement

The information disclosure statement(s) filed August 7, 2001 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609.

Allowable Subject Matter

Claims 7 & 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The instant claims would be allowable over the prior art of record, because the prior art is silent to a battery of similar electrochemistry having an energy density of 7.5 to 8.5 Wh/kg.

The prior art, such as Shimakawa U.S. Patent 5,663,008, teaches a battery assembly having the same electrode materials, working pressure, number of cells, electrical connections and environmental temperature as the subject invention.

However, the reference has energy densities of the range 67 to 63 Wh/kg, not 7.5 to 8.5 Wh/kg as necessitated by the subject invention. It is unclear as to how batteries of the same electrochemistry and physical environment have such dramatically different energy densities. The specification gives no guidance as to how the instant energy densities were obtained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-14 & 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimakawa et al. U.S. Patent 5,663,008.

Shimakawa teaches a battery assembly that can be used as a mobile power source for an electric vehicle (col. 1, lines 50-55, claims 10 & 18). The battery assembly comprises a module battery including an accumulation of approximately 5 to 40 cells, or two or more module batteries, that is, accumulation of approximately 10 to 300 cells, is used, and hence, it is necessary to provide means for decreasing the variation in the battery performances such as battery capacity among the plurality of

Art Unit: 1746

cells, improving the battery performances such as energy density. See column 2, lines 50-60 (addresses claims 1, 5-6, 11 & 13-14). The energy density of the battery assembly ranges from 67 to 63 Wh/kg (tables 1-4). The cells in the battery module are electrically connected (col. 4, lines 20-40, claims 4 & 12). Furthermore, the working pressure of the safety valve is set between 0.2 MPa and 0.8 MPa (col. 9, lines 15-25, claims 3 & 11) with an environmental temperature of 20°C (col. 5, lines 65-68, claims 3 & 11). Battery assemblies comprising the same working pressure, number of cells, electrical connections and environmental temperature, will inherently have a charge equalization of 0.015g or less per Ah (claim 2), power density of 500 to 600 W/kg (claims 8 & 16), battery capacity of 6.5 to 7.2 ah/cell (claims 9 & 17) and electrolyte of 1.3 to 8.0 g/Ah capacity.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ovshinsky et al. U.S. Patent 5,879,831.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

Art Unit: 1746

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

06/27/03



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700